CITY OF FLAGSTAFF
SERVICE AT A HIGHER ELEVATION

CAPITAL IMPROVEMENT PROGRAM
2016-2025

CITY OF FLAGSTAFF
UTILITIES DEPARTMENT

Director	Bradley Hill R.G
Engineering Manager	Ryan Roberts, P.E.
Operations Manager	Mark Richardson
Water Distribution Supervisor	Patrick O'Connor
Water Production Manager	Thomas Boleyn
Wastewater Treatment Manager	----------
Wastewater Collections Supervisor	Bruce Whitley
Industrial Waste Supervisor	James Boyer

February 19, 2015

2016-2025
Capital Improvement Program
Disclaimer

The Capital Improvement program for the Utilities Department is based on needs determined by the Utilities division heads, Utilities Engineering Manager and the Utilities Director. This group meets annually before the budget process and prioritizes the capital needs of the Department.

Analysis is done each year to determine future needs for replacing water and sewer mains in the system. Replacement of aging water and sewer infrastructure is a national and local concern. Deterioration of existing water and sewer infrastructure represent crucial challenges for water utility managers.

Prioritization is based on asset life cycles, regulatory requirements, maintenance requirements and system deficiencies. Future important considerations are Council goals and objectives, Community development, service boundary growth potential, and funding availability.

Project costs are not engineered estimates. The figures shown are Rough Order-of-Magnitude (ROM) estimate of costs before all the project requirements have been specified. The ROM Estimate is based on preliminary scope of work that is subject to change.

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WATER PROJECTS

WATER CIP PROJECTS
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FISCAL YEARS 2016-2025

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		Water/Wastewater											
		Water											
6	1	Reserve for Improvements	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	3,000,000
7	2	Aging Water Infrastructure Replacement	1,000,000	2,400,000	2,832,000	2,832,000	2,832,000	2,832,000	2,832,000	2,832,000	2,832,000	2,832,000	26,056,000
8	3	Radio Read Meter Replacements	300,000	300,000	340,000	340,000	340,000	340,000	360,000	360,000	400,000	400,000	3,480,000
9	4	LM Electrical Service Upgrade	300,000	-	-	-	-	-	-	-	-	-	300,000
10	5	Railroad Springs Reservoir #1 Repaint	-	-	200,000	-	-	-	-	-	-	-	200,000
11	6	Hydrologic Study for New Wells	250,000	-	-	-	-	-	-	-	-	-	250,000
12	7	New Well and Pumphouse	-	1,500,000	1,000,000	-	-	-	-	1,500,000	1,000,000	-	5,000,000
13	8	Lake Mary Land Acquisition	-	-	-	700,000	700,000	-	-	-	-	-	1,400,000
14	9	Rio de Flag Waterline Relocations	-	-	-	250,000	275,000	40,000	357,000	110,000	110,000	120,000	1,262,000
15	10	Switzer Canyon Transmission Line to RFP Plant	-	-	-	-	900,000	950,000	950,000	-	-	-	2,800,000
16	11	Water System Master Plan	-	-	-	-	150,000	-	-	-	-	150,000	300,000
17	12	Water Rate Study	-	-	-	-	175,000	-	-	-	-	175,000	350,000
18	13	Cheshire Tank Upgrade	-	-	-	-	-	700,000	-	-	-	-	700,000
19	14	Fort Tuthill Waterline Loop -Phase 2	-	-	-	-	-	-	-	-	500,000	500,000	1,000,000
20	15	AWIR - Leroux St Waterline / Sewerline	1,200,000	-	-	-	-	-	-	-	-	-	1,200,000
			3,350,000	4,500,000	4,672,000	4,422,000	5,672,000	5,162,000	4,799,000	5,102,000	5,142,000	4,477,000	47,298,000

Project Number: Water 1

Planning Period: FY 16 through FY 25

Description: Reserve for Improvements: Annual Reserve for emergency line breaks, unanticipated line replacements, engineering and oversizing agreements that may occur.

Justification: These monies are budgeted each year for unanticipated waterline projects. City's water mains are subject to catastrophic failure causing emergency repairs, unexpected expenses, and unplanned water outages.

Conceptual Cost:

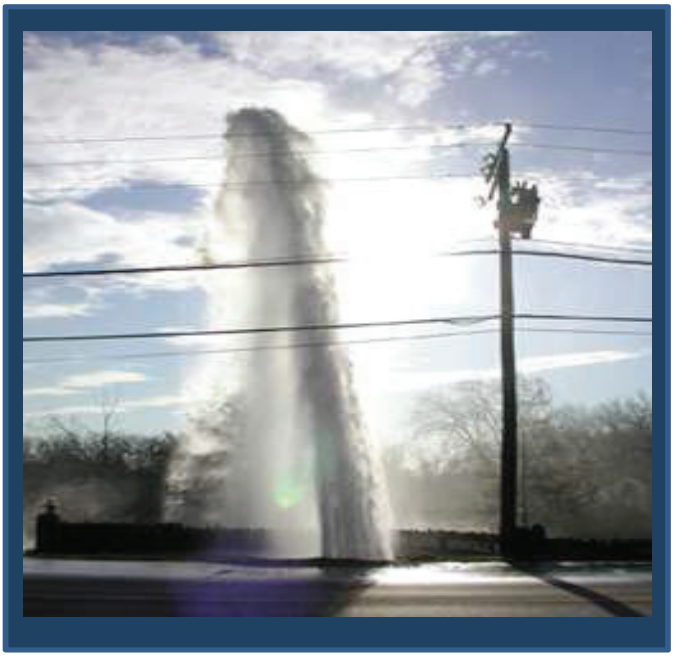
Project Number:	WA 3177
Construction Cost:	$300,000
Project Cost:	$300,000

Facility Design:

Project Number:	WA 3177
Type:	Water Distribution
Quantity:	Varies

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
City Wide	0%	100%



WestLand Resources

Project Number: Water 2

Planning Period: FY 16 through FY 25

Description: Aging Water System Replacement: Replace aging water infrastructure prioritized by age, condition, material, failure, and maintenance cost.

Justification: Flagstaff has 415 miles of waterline with many areas nearing or exceeding their design life. Old water mains are subject to catastrophic failure causing emergency repairs, unexpected expenses, and unplanned water outages.

Conceptual Cost:

Project Number:	WA 3157
Construction Cost:	$26,056,000
Project Cost:	$26,056,000

Facility Design:

Project Number:	WA 3157
Type:	Waterline
Quantity:	2 miles/Year

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
City Wide	0%	100%

WestLand Resources

Project Number: Water 3

Planning Period: FY 16 through FY 25

Description: Annual Meter Read Replacements: Replace and convert meters into modern Automatic Meter Reading (AMR) systems.

Justification: New AMR systems provide a more accurate accounting of water delivery. A significant portion of unaccounted water losses are typically through faulty meter readings. AMR's provide accurate water use delivery data and minimize the human error element. The AMR's have a 15 year life span. As meters age they lose accuracy and need replacement.

Conceptual Cost:

Project Number:	WA 3170
Construction Cost:	$3,480,000
Project Cost:	$3,480,000

Facility Design:

Project Number:	WA 3170
Type:	Meter
Quantity:	1260 meters per year

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
City Wide	0%	100%

Project Number: Water 4

Planning Period: FY '15-'16

Description: Lake Mary Electrical Service Upgrade: Replace service entrance sections, replace two electrical panels, and replace electrical conduit, wiring, and junction boxes inside the tunnel.

Justification: Service entrance section and MCCs are obsolete and some electrical panels are in poor condition with corrosion existing on the electrical conduit and junction boxes inside the tunnel.

Conceptual Cost:

Project Number:	WA 3317
Construction Cost:	$300,000
Project Cost:	$300,000

Facility Design:

Project Number:	WA 3317
Type:	Plant Electric
Quantity:	N/A

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
City Wide	0%	100%

Project Number: Water 5

Planning Period: FY '17-'18

Description: Railroad Springs Reservoir #1 Repair: Paint the exterior of the Railroad Springs Reservoir.

Justification: Maintenance of the steel reservoirs including paint throughout the city is imperative to minimize corrosion and extend the life and aesthetics of the tanks.

Conceptual Cost:

Project Number:	WA 32XX (not assigned)
Construction Cost:	$200,000
Project Cost:	$300,000

Facility Design:

Project Number:	WA 32XX
Type:	Storage
Quantity:	N/A

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
Zone A	0%	100%

WestLand Resources

Project Number: Water 6

Planning Period: FY '15-'16

Description: Hydrologic Study for New Wells: Investigating local optimal sites in terms of water production, utility tie-in, and access for new well sites in and around the COF.

Justification: The need for additional well capacity is required to support the growth of the community. Per the newly adopted Flagstaff Regional Plan, the COF can expect 1.4 to 2.5% annual growth putting additional pressure on water production, necessitating additional water sources.

Conceptual Cost:

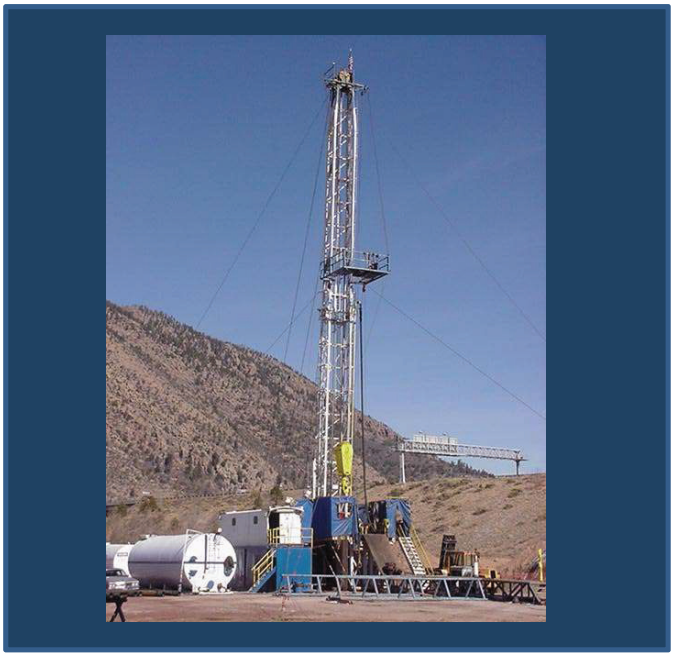
Project Number:	WA 3318
Construction Cost:	N/A
Project Cost:	$250,000

Facility Design:

Project Number:	WA 3318
Type:	Water Resources
Quantity:	N/A

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
Zone A	100%	0%



WestLand Resources

Project Number: Water 7

Planning Period: FY 17 through FY 18 and FY 23 through FY 24

Description: New Well and Pumphouse: Drill and equip an additional well with a minimum production of 200GPM production along with the construction and furnishing of a pumphouse and tie into the existing city water infrastructure.

Justification: The need for additional well capacity is required to support the growth of the community. Per the newly adopted Flagstaff Regional Plan, the COF can expect 1.4 to 2.5% annual growth putting additional pressure on water production, necessitating additional water sources. This project was deferred along with the Capacity Fee increase as part of the 2010 Utility Rate Increase approved in August 2010.

Conceptual Cost:

Project Number:	WA 32XX (not assigned)
Construction Cost:	$300,000
Project Cost:	$2,500,000

Facility Design:

Project Number:	WA 32XX
Type:	Water Production
Quantity:	1 every 5 years

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
City Wide	100%	0%

WestLand Resources

Project Number: Water 8

Planning Period: FY 19 through FY 20

Description: Lake Mary Land Acquisition: Purchase of the Lake Mary Water Treatment Plant property from the USFS.

Justification: The plant was constructed in 1940 on Forest Service property and is to be acquired as part of the land acquisition deal that includes the airport site.

Conceptual Cost:

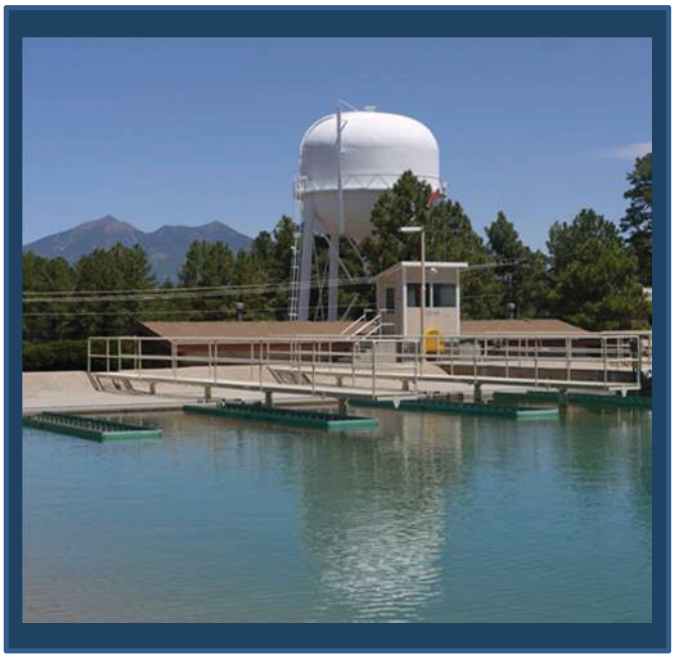
Project Number:	WA 32XX (not assigned)
Construction Cost:	
Project Cost:	$1,400,000

Facility Design:

Project Number:	WA 32XX
Type:	Land Acquisition
Quantity:	

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
	0%	100%



WestLand Resources

Project Number: Water 9

Planning Period: FY 19 through FY 25

Description: Rio de Flag Waterline Relocations: Replace existing waterlines in conflict with the Rio de Flag Flood Control project being designed by the Army Corps of Engineers.

Justification: The project is required to support the Rio de Flag stormwater drainage culverts being installed throughout the city. The Army Corps of Engineers representatives are responsible for administering a Design/Build contract and necessary utility line relocations for the Culvert Replacement Project in the Rio de Flag.

Conceptual Cost:

Project Number:	WA 33156
Construction Cost:	$1,110,560
Project Cost:	$1,262,000

Facility Design:

Project Number:	WA 3156
Type:	Water Distribution
Quantity:	

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
City Wide	0%	100%

WestLand Resources

Project Number: Water 10

Planning Period: FY '19-'20 through FY '21-'22

Description: Switzer Canyon Transmission Line to RFP: Replacing cast iron (CI) and ductile iron (DI) transmission lines.

Justification: These lines have exceeded their expected life. The mains are experiencing frequent breaks due to poor bedding and lack of inspection during installation in the 1950's. Mains run within a few feet of existing building foundations and have experienced multiple breaks within the last few years. These breaks have resulted in the Hospital shutting down and cancelling 60 surgeries

Conceptual Cost:

Project Number:	WA 3311
Construction Cost:	$2,464,000
Project Cost:	$2,800,000

Facility Design:

Project Number:	WA 3311
Type:	Water Distribution
Quantity:	

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
City Wide	50%	50%

Project Number: Water 11

Planning Period: FY 20 and FY 25

Description: Water System Master Plan: The Master Plan objective is to collect, analyze, and provide information in one location in order to provide the most cost effective, reliable service to the City's utility customers. .

Development of a formal master planning tool for the water distribution system.

Justification: A master plan is necessary as a reference document and predictive tool in planning for the current and future needs of the water system.

Conceptual Cost:

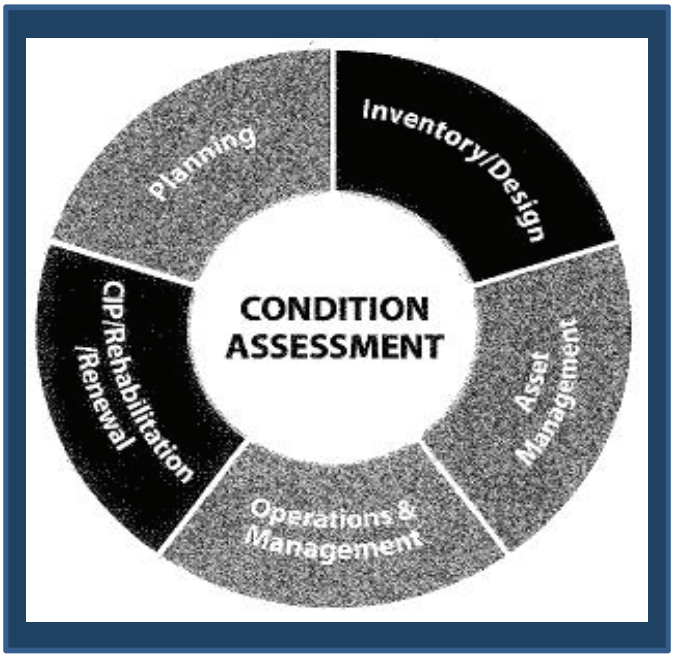
Project Number:	WA 3178
Construction Cost:	
Project Cost:	$300,000

Facility Design:

Project Number:	WA 3178
Type:	Planning
Quantity:	

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
City Wide	50%	50%



Project Number: Water 12

Planning Period: FY 20 and FY 25

Description: Water Rate Study: Prepare a current utility rate analysis and update city utility rates.

Justification: Scheduled rate studies assure the city is managing utilities in a prudent efficient manner. The running of utilities is a capital intensive venture with multi-millions of dollars of infrastructure in constant need of repair, upgrade, and expansion to meet the needs of a growing thriving community. The rate study assures adequate fees are charged for services delivered to cover the capital investment while assuring rates brought into the city are directly tied to the cost of the service.

Conceptual Cost:

Project Number:	WA 3179
Construction Cost:	NA
Project Cost:	$175,000 per analysis

Facility Design:

Project Number:	WA 3179
Type:	Planning Study
Quantity:	Every 4 years

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
City Wide	30%	70%

WestLand Resources

Project Number: Water 13

Planning Period: FY '20-'21

Description: Cheshire Tank Upgrade: Construction of a new 1.3 MG water storage tank at the existing tank site. The developer for McMillan Mesa triggered the requirement for an additional water reservoir in order to achieve adequate fire flows for the development on the mesa in Pressure Zone A. The developer's portion is 550,000 gallons (42.3%), the Utilities department portion is 750,000 (57.7%). The Utilities Department is contributing up to 700,000 of the total amount to complete the developer required improvements.

Justification: Support future growth and development in pressure Zone A. Also supports growth at the USGS campus and Innovation Mesa development.

Conceptual Cost:

Project Number:	WA 3185
Construction Cost:	$700,000
Project Cost:	$700,000

Facility Design:

Project Number:	WA 3185
Type:	Storage
Quantity:	1.3 MG

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
Zone A	100%	0%

WestLand Resources

Project Number: Water 14

Planning Period: FY '23-'24 through FY '24-'25

Description: Fort Tuthill Waterline Loop- Phase 2: Extension of a 16" transmission main from University Heights to Fort Tuthill.

Justification: Provide additional water supply from new Fort Tuthill well to the City distribution system. This line will support agreements made by the city with Fort Tuthill and/or Luke Air Force base to provide adequate water infrastructure and fire flows for this area.

Conceptual Cost:

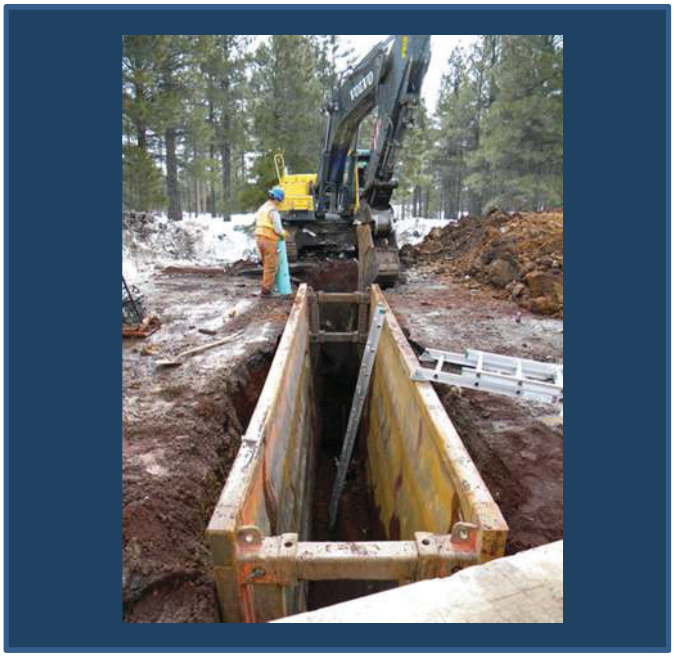
Project Number:	WA 31XX (not assigned)
Construction Cost:	$880,000
Project Cost:	$1,000,000

Facility Design:

Project Number:	WA 31XX
Type:	Water Distribution
Quantity:	9,500 LF

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
City Wide	100%	0%



WestLand Resources

Project Number: Water 15

Planning Period: FY '15-'16

Description: Leroux St. Waterline Replacement: Replace the water main in Leroux St. from approximately Route 66 to Hunt. Project delivery method will be Construction Management at Risk (CMAR) and has been awarded to Achen Gardner.

Justification: This is part of the city's ongoing infrastructure replacement program. As old water mains age they are subject to failure causing emergency repairs, unplanned outages, and poor customer services. Continued replacement of aging water infrastructure assures continuous safe delivery of water throughout the city.

Conceptual Cost:

Project Number:	WA 3289
Construction Cost:	$1,806,000
Project Cost:	$1,926,000

Facility Design:

Project Number:	WA 3289
Type:	Water Distribution
Quantity:	3,535 LF

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
City Wide	0%	100%

WestLand Resources

WASTEWATER PROJECTS

WASTEWATER CIP PROJECTS
CAPITAL IMPROVEMENT PROGRAM LISTING
FISCAL YEARS 2016-2025

Page #			Budget 2015-2016	Budget 2016-2017	Budget 2017-2018	Budget 2018-2019	Budget 2019-2020	Budget 2020-2021	Budget 2021-2022	Budget 2022-2023	Budget 2023-2024	Budget 2024-2025	Total Plan
		Water/Wastewater											
		Wastewater											
23	1	Reserve for Improvements	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	3,000,000
24	2	Aging Sewer Infrastructure Replacements	368,600	1,300,000	1,300,000	1,300,000	1,300,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	14,568,600
25	3	WWTP Blower Energy Efficiency Program	600,000	650,000	350,000	-	-	-	-	-	-	-	1,600,000
26	4	Rio Plant - Replace UV System	1,400,000	-	-	-	-	-	-	-	-	-	1,400,000
27	5	Wildcat - Septage and Grease Station	200,000	-	-	-	-	-	-	-	-	-	200,000
28	6	Wildcat- Micro Carbon Feed Addition	200,000	-	-	-	-	-	-	-	-	-	200,000
29	7	Westside Interceptor Improvements	-	-	500,000	-	-	-	-	-	-	-	500,000
30	8	Wildcat- Primary Pump Station	-	-	-	300,000	-	-	-	-	-	-	300,000
31	9	Rio de Flag Sewer Relocates	-	-	-	250,000	275,000	40,000	357,000	110,000	110,000	120,000	1,262,000
32	10	Backup Generator at Rio Plant	-	-	-	400,000	-	-	-	-	-	-	400,000
33	11	Sewer / Reclaimed Water Master Plan	-	-	-	-	125,000	-	-	-	-	125,000	250,000
34	12	Rio Filter Expansion, TF-1	-	-	-	-	-	-	550,000	-	-	-	550,000
35	13	Bonita Sewer Replacement	931,400	-	-	-	-	-	-	-	-	-	931,400
			4,000,000	2,250,000	2,450,000	2,550,000	2,000,000	2,140,000	3,007,000	2,210,000	2,210,000	2,345,000	25,162,000

Project Number: Wastewater 1

Planning Period: FY 16 through FY 25

Description: Reserve for Improvements: Annual Reserve for emergency sewer repairs, unanticipated line replacements, engineering and oversizing agreements that may occur.

Justification: These monies are budgeted each year for unanticipated sewerline projects. City's sewer mains are subject to sanitary sewer overflows, catastrophic failure causing emergency repairs, unexpected expenses, and unplanned sewer outages.

Conceptual Cost:

Project Number:	WW 3235
Construction Cost:	$300,000
Project Cost:	$300,000

Facility Design:

Project Number:	WW 3235
Type:	Sewer Collection
Quantity:	Varies

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
City Wide	0%	100%

WestLand Resources

Project Number: Wastewater 2

Planning Period: FY ’15-’16 through FY ’24-‘25

Description: Aging Sewer Infrastructure Replacements: Replace approximately 5,300 ft. of sewer main each year. Sewer mains will be prioritized for replacement by age, condition, material, and failures/maintenance repair costs.

Justification: One of the main challenges of the city’s collection system is the maintenance and replacement of VCP, concrete, and DI sewer pipe used to establish the city’s sewer system. Currently the COF has over 267 miles of sewer pipeline, much of which is over 70 years old. Old sewer pipes can create maintenance problems for customers resulting from build-up of roots, broken joints, and corroded pipes. As part of a long-range program COF has a target of completing one mile pipeline rehabilitation work each year. Rehabilitating and replacing sewer pipes is an essential part of Flagstaff’s CIP.

Conceptual Cost:

Project Number:	WW 3220
Construction Cost:	$12,820,368
Project Cost:	$14,568,000

Facility Design:

Project Number:	WW 3220
Type:	Sewer Collection
Quantity:	1 mile per year

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
City Wide	0%	100%

WestLand Resources

Project Number: Wastewater 3

Planning Period: FY ’15-’16 through FY ’17-‘18

Description: WWTP Blower Energy Efficiency Program: In 2010 the Utilities department commissioned an energy audit on the Rio and Wildcat Reclamation facilities. One component of the audit was to evaluate the energy efficiency of existing blowers. The audit identified high use inefficient blowers which if replaced would have reasonable payback periods due to significant energy cost savings.

Justification: This is an energy savings project. These projects will reduce the energy consumption of the two treatment plants.

Conceptual Cost:

Project Number:	WW 3204
Construction Cost:	$1,408,000
Project Cost:	$1,600,000

Facility Design:

Project Number:	WW 3204
Type:	Wastewater Treatment
Quantity:	

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
Citywide	0%	100%

WestLand Resources

Project Number: Wastewater 4

Planning Period: FY '15-'16

Description: Replace Ultraviolet UV System at Rio De Flag Water Reclamation Plant: Brown and Caldwell has been retained to prepare the system design.

Justification: The existing UV disinfection system is over 24 years old and has high annual maintenance costs due to its age, condition, and availability of parts.

Conceptual Cost:

Project Number:	WW 3319
Construction Cost:	$1,300,000
Project Cost:	$1,400,000

Facility Design:

Project Number:	WW 3319
Type:	Wastewater Treatment
Quantity:	

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
Rio WRP	0%	100%

Project Number: Wastewater 5

Planning Period: FY '15-'16

Description: Wildcat- Septage and Grease Station: Improvements to the septage receiving system so it can more effectively accommodate the increase in the number of haulers and unloading frequency due to growth. These improvements are important to prevent inappropriate septage dumping and to assure that the waste material is treated through a capable WWTP before it is discharged to the environment. Tetra Tech has been retained to provide the system design.

Justification: The Wildcat Septage and Grease Station is the only facility legally accepting septage and grease in Coconino County. Improperly processed septage and grease can lead to system solids overloading, decreasing the efficiency of the treatment system process.

Conceptual Cost:

Project Number:	WW 3297
Construction Cost:	$200,000
Project Cost:	$200,000

Facility Design:

Project Number:	WW 3297
Type:	Wastewater Treatment
Quantity:	

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
Wildcat Hill WWTP	0%	100%

WestLand Resources

Project Number: Wastewater 6

Planning Period: FY '15-'16

Description: Wildcat- Micro Carbon Feed Addition: Project to consist of design for the installation of a new carbon feed system to provide supplemental carbon to optimize denitrification in the anoxic basins at the Wildcat Hill WWTP. The project will include design for a new 5,000 gallon liquid carbon storage tank, two carbon feed pumps, spill containment, electrical and instrumentation, all housed in a new 224 square foot building.

Justification: Project necessary to meet nitrogen levels required by ADEQ permit for reclaimed water and ADEQ Consent Order.

Conceptual Cost:

Project Number:	WW 3320
Construction Cost:	$200,000
Project Cost:	$200,000

Facility Design:

Project Number:	WW 3320
Type:	Wastewater Treatment
Quantity:	

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
Wildcat Hill WWTP	0%	100%

Project Number: Wastewater 7

Planning Period: FY '17-'18

Description: Westside Interceptor Improvements: The replacement of 8" sewer with 18" sewer. The engineering design was completed in 2008.

Justification: This project is required to handle projected growth on the West Side. Projects affected include WL Gore Manufacturing expansion, Railroad Springs Unit 5-Crestview Estates, and Wayne Thompson County Island to be served by City sewer collection system.

Conceptual Cost:

Project Number:	WW 3164
Construction Cost:	$500,000
Project Cost:	$500,000

Facility Design:

Project Number:	WW 3164
Type:	Sewer Collection
Quantity:	1,980 lf

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
Westside	100%	0%

WestLand Resources

Project Number: Wastewater 8

Planning Period: FY '18-'19

Description: Wildcat- Primary Pump Station: Scope of work includes replacement of four (4) existing pumps, (4) variable frequency drives, associated piping, and Scada control panel. Project was identified in 2010 energy audit on the Wildcat wastewater plant. One component of the audit was to evaluate the energy efficiency of pumps. The audit identified high use inefficient pumps which if replaced would have reasonable payback periods due to significant energy cost savings.

Justification: This is an energy savings project. This project will reduce the energy consumption of the Wildcat primary pump station and is eligible for Arizona Public Service energy rebates.

Conceptual Cost:

Project Number:	WW 3204
Construction Cost:	$300,000
Project Cost:	$300,000

Facility Design:

Project Number:	WW 3204
Type:	Wastewater Treatment
Quantity:	

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
Wildcat Hill WWTP	0%	100%

WestLand Resources

Project Number: Wastewater 9

Planning Period: FY ’18-’19 through FY ’24-‘25

Description: Rio de Flag Sewer Relocations: Replace existing waterlines in conflict with the Rio de Flag Flood Control project being designed by the Army Corps of Engineers.

Justification: The project is required to support the Rio de Flag Stormwater Drainage culvert being installed throughout the city. The Army Corps of Engineers representatives are responsible for administering a Design/Build contract and necessary utility line relocations for the Culvert Replacement Project in the Rio de Flag crossing.

Conceptual Cost:

Project Number:	WW 3286
Construction Cost:	$1,110,560
Project Cost:	$1,262,000

Facility Design:

Project Number:	WW 3286
Type:	Sewer Collection
Quantity:	Varies Annually

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
City Wide	0%	100%

WestLand Resources

Project Number: Wastewater 10

Planning Period: FY '18-'19

Description: Backup Generator at Rio Plant: Install an emergency power generator (natural gas engine) to enable operations during APS power outages.

Justification: A backup generator is critical when power is lost as wastewater continues to flow during these outages. Backup power is also a requirement of existing ADEQ permits.

Conceptual Cost:

Project Number:	WW 32XX (not assigned)
Construction Cost:	$400,000
Project Cost:	$400,000

Facility Design:

Project Number:	WW
Type:	Wastewater Treatment
Quantity:	1

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
Rio WRP	50%	50%

Project Number: Wastewater 11

Planning Period: FY '19-'20 and FY '24-'25

Description: Sewer/Reclaimed Water Master Plan: A formal master planning tool to be used for the management, proper planning, condition assessments, and prioritizing annual sewer replacement in the sewer collection system.

Justification: A master plan is necessary as a reference document and predictive tool in planning for the current and future needs of the wastewater collection system.

Conceptual Cost:

Project Number:	WW
Construction Cost:	
Project Cost:	$250,000

Facility Design:

Project Number:	WW
Type:	Planning - Study
Quantity:	

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
City Wide	50%	50%

Project Number: Wastewater 12

Planning Period: FY '21-'22

Description: Rio Filter Expansion, TF-1: Project includes the design and construction for addition of two tertiary dual media filters to Rio plant. Filters to be enclosed.

Justification: Current filter capacity cannot process full plant design of 4 MGD on a consistent basis because filters must be taken out of service for maintenance. Project will allow for consistent 6 MGD treatment.

Conceptual Cost:

Project Number:	WW 32XX (not assigned)
Construction Cost:	$484,000
Project Cost:	$550,000

Facility Design:

Project Number:	WW
Type:	Wastewater Treatment
Quantity:	

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
Rio WRP	100%	0%

Project Number: Wastewater 13

Planning Period: FY '15-'16

Description: Bonita Sewer Replacement: Project includes replacement of approximately 750 feet of sewer, 1100 feet of water main and full street reconstruction of Bonito from Santé Fe Avenue to Elm Street.

Justification: Part of the overall annual sewer replacement program. The existing vitrified clay pipe mains in Bonito Street were installed in 1919 are over 95 years old and experiencing high maintenance costs. Old sewer pipes can create maintenance problems for customers resulting from build-up of roots, broken joints, and corroded pipes. As part of a long-range program COF has a target of completing one mile pipeline rehabilitation work each year.

Conceptual Cost:

Project Number:	WW 3284
Construction Cost:	$819,632
Project Cost:	$931,400

Facility Design:

Project Number:	WW 3284
Type:	Collection System
Quantity:	750 LF - Sewer

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
Downtown	0%	100%

WestLand Resources

RECLAIMED WATER PROJECTS

RECLAIMED WATER CIP PROJECTS
CAPITAL IMPROVEMENT PROGRAM LISTING
FISCAL YEARS 2016-2025

Page #			Budget 2015-2016	Budget 2016-2017	Budget 2017-2018	Budget 2018-2019	Budget 2019-2020	Budget 2020-2021	Budget 2021-2022	Budget 2022-2023	Budget 2023-2024	Budget 2024-2025	Total Plan
		Water/Wastewater											
		Reclaimed Water											
38	1	Buffalo Tank Chlorination	150,000	-	-	-	-	-	-	-	-	-	150,000
39	2	Juniper Point 12" Reclaim Line Connection	-	-	210,000	-	310,000	-	-	-	-	-	520,000
			150,000	-	210,000	-	310,000	-	-	-	-	-	670,000

Project Number: Reclaim 1

Planning Period: FY '15-'16

Description: Buffalo Tank Chlorination: Design and installation of chlorination and mixing equipment to assure a minimum chlorine residual throughout the system.

Justification: A residual chlorine concentration is necessary to reduce sludge buildups in the tank and lines and reduce potential public health effects of water borne vectors.

Conceptual Cost:

Project Number:	WW 3226
Construction Cost:	$150,000
Project Cost:	$150,000

Facility Design:

Project Number:	WW 3226
Type:	Reclaim Storage
Quantity:	

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
City Wide	20%	80%

WestLand Resources

Project Number: Reclaim 2

Planning Period: FY ’17-’18 and FR ’19-‘20

Description: Juniper Point 12” Reclaim Line Connection: Install 1,400 feet of 12” diameter DI reclaimed waterline to NE corner of Juniper Point Development in order to connect to the COF reclaim system in Rio de Flag wash near the Rio Plant. In FY20 the City will complete the loop by installing an additional 2000 ft of 12” PVC to connect at JW Powell Boulevard.

Justification: City’s participation in the extension of the Reclaim water system to the Juniper Point development. This reclaim line is necessary to deliver reclaimed water to the Juniper Pont development. The developer is required to install the reclaim infrastructure on the project site but not required to provide any offsite improvements.

Conceptual Cost:

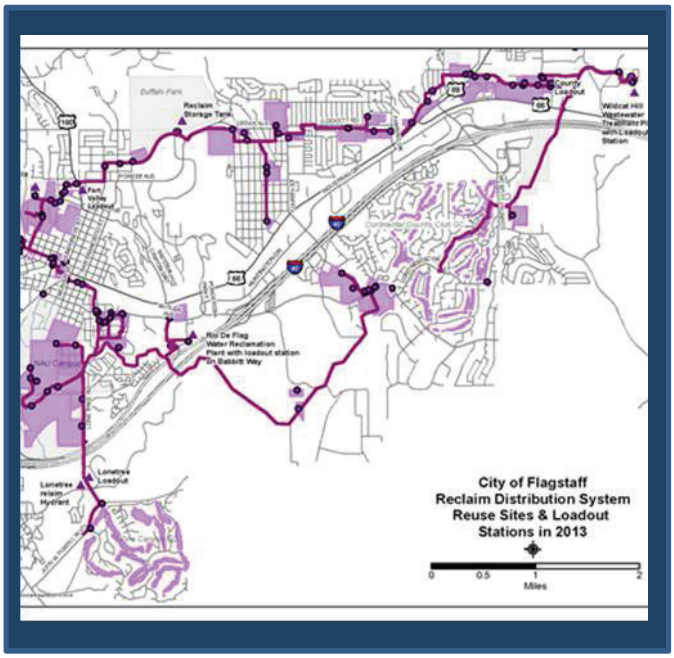
Project Number:	RC 32XX
Construction Cost:	$457,600
Project Cost:	$520,000

Facility Design:

Project Number:	RC 32XX
Type:	Reclaim Distribution
Quantity:	1,400 LF

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
City Wide	50%	50%



WestLand Resources

STORMWATER PROJECTS

Rainfall Gauge at Clay Avenue Wash Detention Basin

STORMWATER CIP PROJECTS
CAPITAL IMPROVEMENT PROGRAM LISTING
FISCAL YEARS 2016-2025

Page #			Budget FY2015	Budget FY2016	Budget FY2017	Budget FY2018	Budget FY2019	Budget FY2020	Budget FY2021	Budget FY2022	Budget FY2023	Budget FY2024	Budget FY2025	Total Plan
		Stormwater												
42	1	Drainage Spot Improvement (DrIP)	$ 630,000	$ 630,000	$ 630,000	$ 630,000	$ 630,000	$ 630,000	$ 630,000	$ 630,000	$ 630,000	$ 630,000	$ 630,000	6,930,000
43	2	Spot Improvement - Annual	75,000	75,000	75,000	75,000	75,000	130,000	130,000	130,000	130,000	130,000	75,000	1,100,000
44	3	Rio De Flag Project	-	-	-	-	-	-	-	-	-	-	-	-
45	4	Rio Parking Replacement	-	-	-	-	-	-	-	-	-	-	-	-
46	5	5 Points	175,000	-	-	-	-	-	-	-	-	-	-	175,000
47	6	Structural Evaluation of Rio de Flag Culvert	10,000	-	-	-	-	-	-	-	-	-	-	10,000
48	7	City Property at 116 E Butler	20,000	-	-	-	-	-	-	-	-	-	-	20,000
49	8	Fanning Drive - Steve's Blvd Crossing	35,000	-	-	-	-	-	-	-	-	-	-	35,000
50	9	Sunridge and Country Club Estates	300,000	-	-	-	-	-	-	-	-	-	-	300,000
51	10	Schultz Creek	90,000	250,000	-	-	-	-	-	-	-	-	-	340,000
52	11	Cottage and Elden	-	-	250,000	-	-	-	-	-	-	-	-	250,000
53	12	Spruce Avenue Wash - Linda Vista	-	-	-	200,000	-	-	-	-	-	-	-	200,000
54	13	Spruce Avenue Wash - Dortha Inlet	-	-	-	-	200,000	-	-	-	-	-	-	200,000
55	14	West Phoenix	-	-	-	-	-	200,000	-	-	-	-	-	200,000
56	15	Sunnyside Hill	-	-	-	-	-	-	200,000	-	-	-	-	200,000
57	16	Shadow Mountain Phase II	-	-	-	-	-	-	-	150,000	-	-	-	150,000
58	17	Darleen Drive	-	-	-	-	-	-	-	-	100,000	-	-	100,000
59	18	McMillan Mesa	-	-	-	-	-	-	-	-	-	75,000	-	75,000
60	19	Smokerise	-	-	-	-	-	-	-	-	-	-	200,000	200,000
			705,000	325,000	325,000	275,000	275,000	330,000	330,000	280,000	230,000	205,000	275,000	3,555,000

Project Number: Stormwater 1

Planning Period: FY '15-'26 through FY '24-'25

Description: Annual Drainage Spot Improvement- DriP: Annual allocation of stormwater utility funds to mitigate localized drainage problems. Includes rehabilitation and replacement of drainage culverts/pipe based on condition assessment and "benchmarking" prioritization.

Justification: Existing infrastructure is undersized and in poor condition requiring excessive maintenance.

Conceptual Cost:

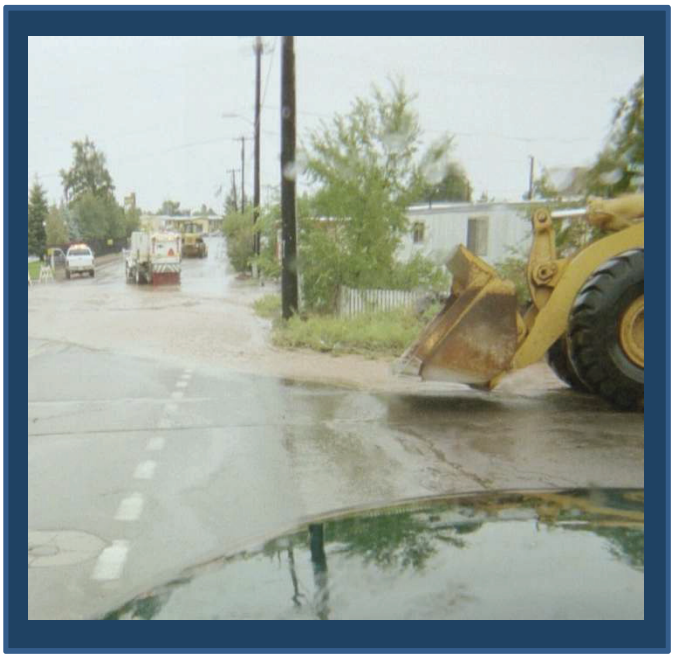
Project Number:	WS 3238
Construction Cost:	$250,000 per year
Project Cost:	$250,000

Facility Design:

Project Number:	WS 3238
Type:	SW Replacement
Quantity:	1,000 ft.

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
City Wide	0%	100%



WestLand Resources

Project Number: Stormwater 2

Planning Period: FY ’15-’26 through FY ’24-‘25

Description: Annual Spot Improvement: Ongoing annual fund for modifications and/or additions to the storm drain system. Project includes rehabilitation or replacement of various stormwater conveyance infrastructures.

Justification: Existing infrastructure is undersized and in poor condition requiring excessive maintenance.

Conceptual Cost:

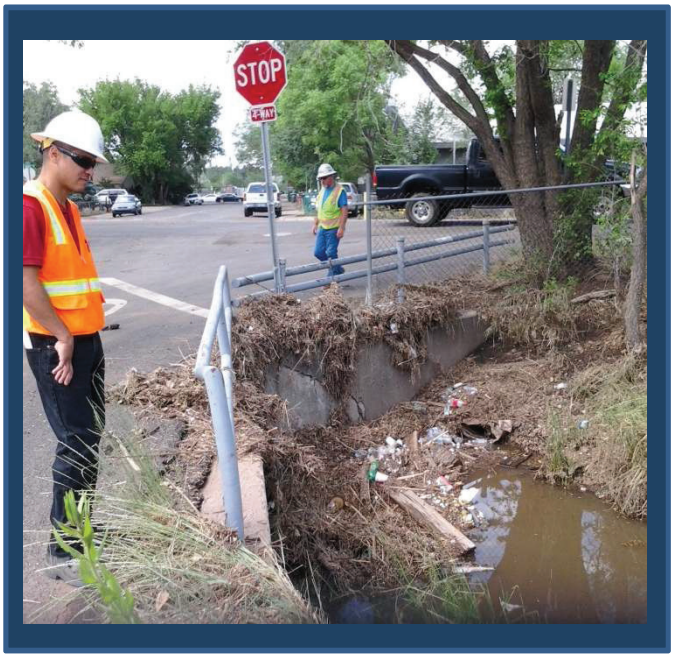
Project Number:	WS 3238A
Construction Cost:	$250,000 per year
Project Cost:	$250,000A

Facility Design:

Project Number:	WS 3238A
Type:	Rehabilitation or Replacement
Quantity:	Varies by year

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
City Wide	0%	100%



Project Number: Stormwater 3

Planning Period: FY ’15-’26 through FY ’24-’25 - Non-funded

Description: Rio de Flag Project: The Rio de Flag Flood Control project is a joint venture between the City of Flagstaff and US Army Corps of Engineers. This project is a critical component for the long range protection and continued development for the City of Flagstaff. The stated intent of the project is to contain the 100 year event in the proposed flood control structures and eliminate the floodplain along the Clay Wash/Blackbird Roost reach, sections of Old Town, and the south side areas that are adversely impacted by flooding of the Rio de Flag.

Justification: This project will mitigate potential flood damage and facilitate redevelopment in central business district, removing homes and businesses from 100 year flood plain, lower flood insurance premiums.

Conceptual Cost:

Project Number:	WS 1252A
Construction Cost:	$35,000,000
Project Cost:	$35,000,000

Facility Design:

Project Number:	WS 1252A
Type:	Infrastructure
Quantity:	Varies by year

Funding Categories:

Service Area	% Growth/Capacity Fees	% O&M/Rates
Downtown- Southside	0%	100%

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